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declaring that he would make him responsible for the hindrance thus offered to the prosecution and success of the expedition ; and this had the effect of creating alarm, and inducing the commandant to request a copy of Mr. Browne's orders, that he might consult at leisure about opening the government stores to him. But the delay and uncertainty thus occasioned, together with the death of their companion, seem early to have had an injurious effect on the spirits of the party, and a very short time concluded the scene.

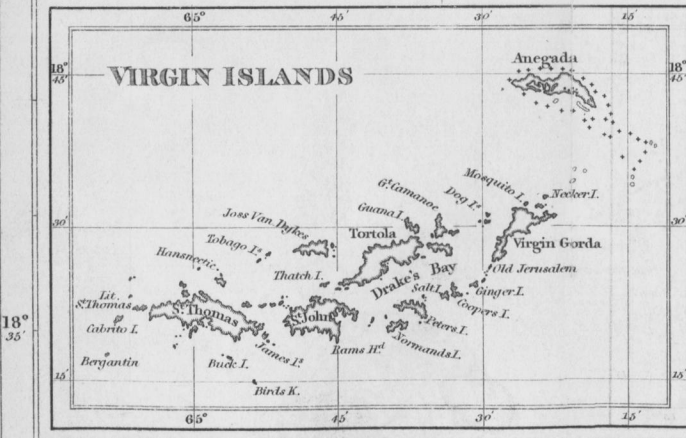
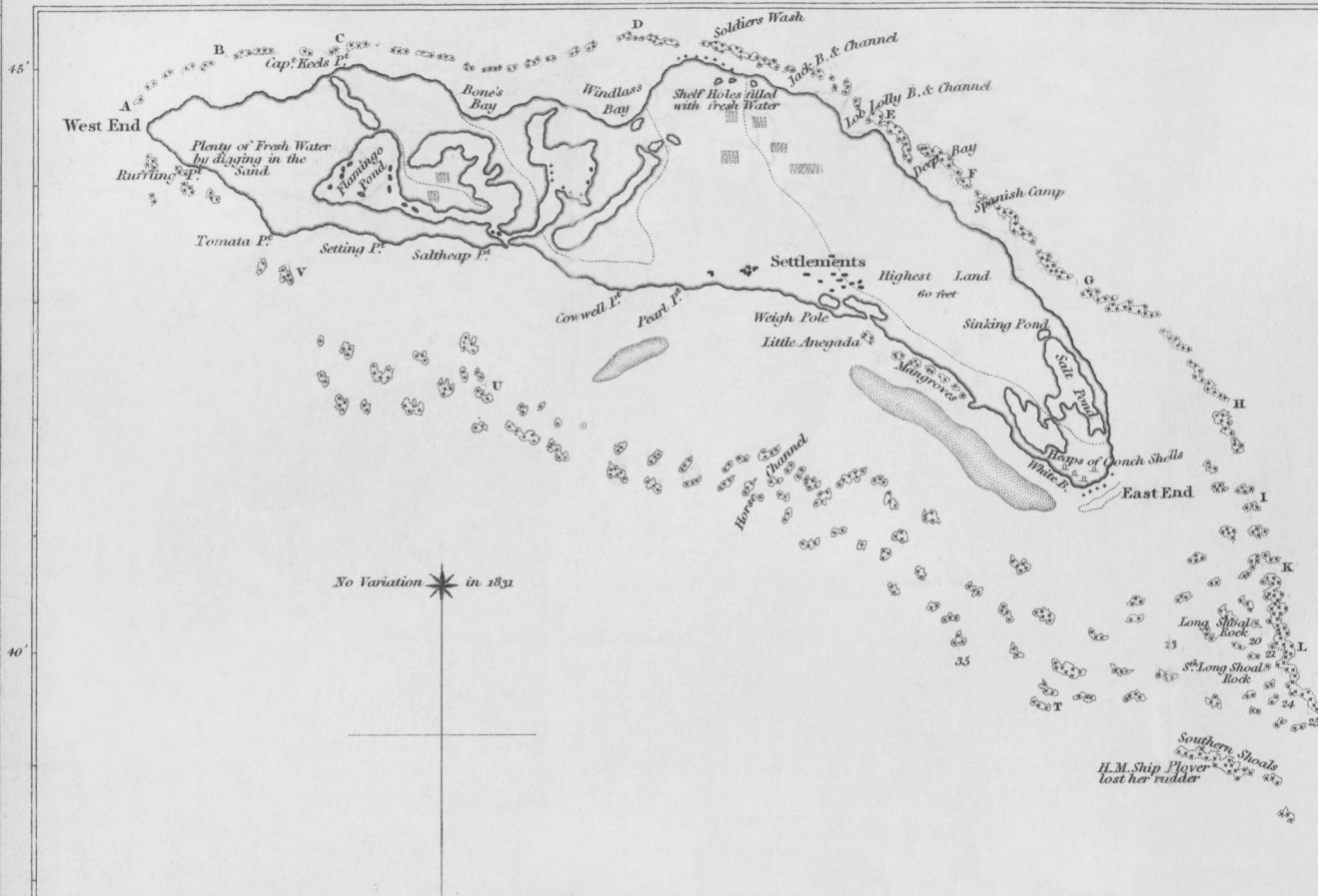
On the 27th of August, Mr. Browne, who had already several times experienced slight attacks of fever, was taken more seriously ill ; and his journal terminates on the 2d September. He appears to have died about the 4th. Adonis and Antonio were next seized, but recovered. Mr. Kilpatrick was attacked on the 1st September ; and although he lingered a considerable time, and permission was eventually granted him to proceed to Tette, his spirit gradually sunk, and he returned to Chapongah, on his way down the river. He was here again hospitably received by Donna Pascoa, who renewed her efforts to persuade him to try the country method of cure ; but instead of this, although his habits had been previously abstemious, he sought comfort and consolation in excesses, which terminated his life on the 28th October. He was faithfully attended to the last by the two black servants, who, after his death, returned to Quillimane, and were re-embarked.

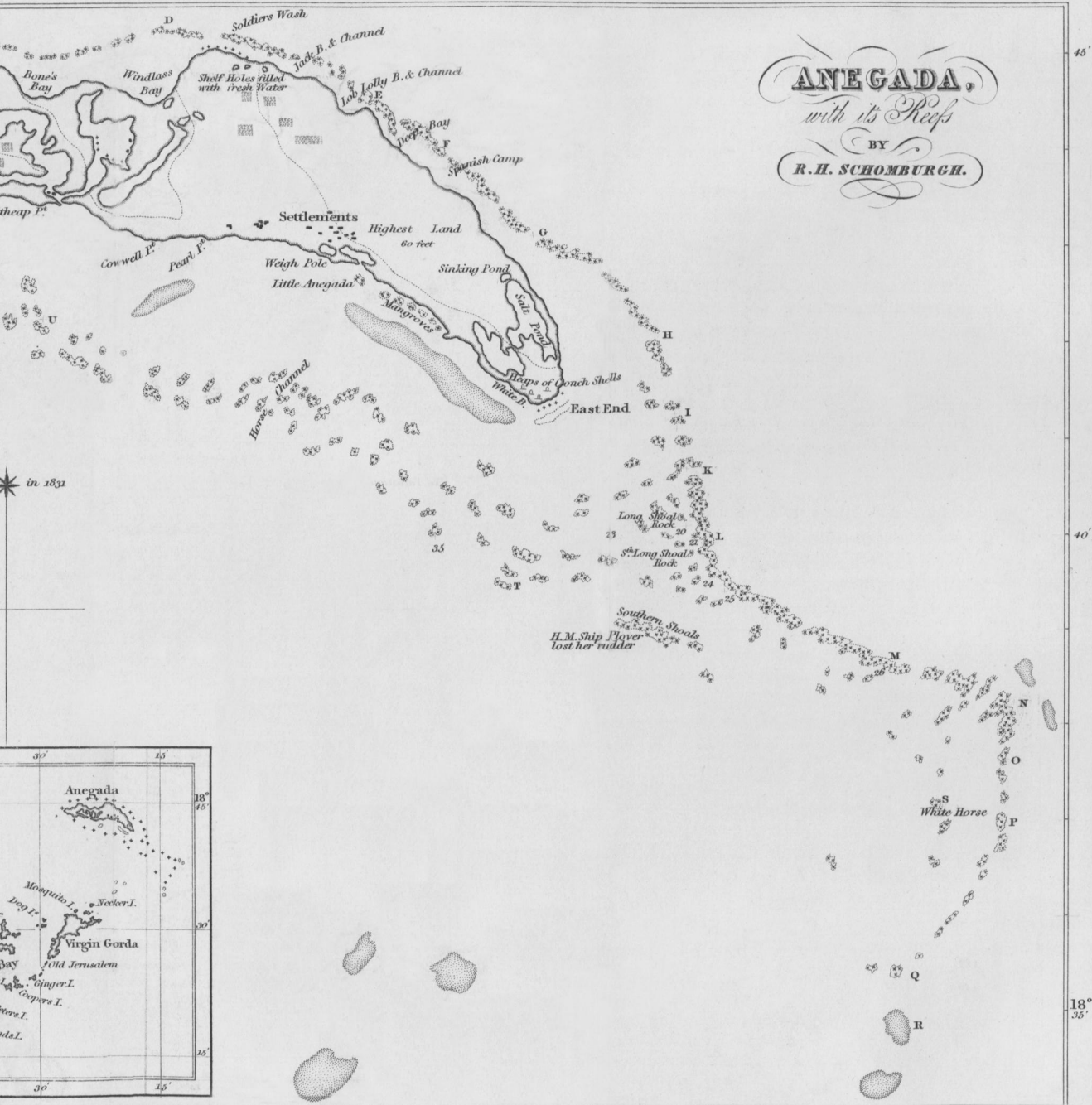
During the first three or four days after the arrival of the party at Senna, light winds prevailed from the north-east, and the thermometer varied from 70° to 76°. One night it stood at the latter at twelve o'clock. The wind afterwards changed to the south-west, with intervals of calms, but the thermometer averaged nearly as before. The sensation of heat, however, is represented to have been always greater than might have been expected from the indications of the thermometer.

X.—*Remarks on Anegada.* Communicated by Robert Hermann Schomburgk, Esq., Member of the Horticultural Society of Berlin*. Read 25th of June, 1832.

ANEGADA, or Anagada, is the most northern of the cluster of islands and keys known by the name of the Virgin Islands, and is unhappily celebrated for the number of wrecks, in many cases accompanied with a heavy loss of life, which it has occasioned.

* Mr. Schomburgk is now travelling in the West Indies ; and being at St. Thomas's when the *Lewis*, American brig, was wrecked on Anegada, resolved to re-survey it. The above remarks, with the accompanying map, are the result of his observations while thus employed ; and he has also completed a detailed chart of the reefs, with the soundings between them.





Of its history little is known ; and there is no likelihood that it was settled early. Père Labat, the only early writer who speaks of the lesser West India islands, observes, that the aborigines used it as an occasional rendezvous, where they procured great quantities of conchs (*strombus gigas*) ; and large piles of these shells are still to be seen at the east end of the island, but nowhere else ; which seems to prove decidedly that it was not permanently occupied, but merely resorted to from time to time. These conchs are still found in great numbers in the shallow waters at the east end, chiefly in the months of May and November ; and the dry shells piled up have all a hole in the lower end of the spire, for which the most probable reason is, that the animal is thus most easily extracted. It appears surprising that so much care should have been taken to pile them up, and it has been surmised, in consequence, that these heaps were burial-places ; but several have been taken down, and burnt for lime (the quality of which is excellent), without any trace having been found of human bones, or other extraneous substance. And it is more probable that they were merely piled up to be out of the way, the current not being strong enough to carry them off had they been thrown into the sea ; where, had they remained, they would have embarrassed the fishing for the living animal.

At a later period the retired bays of the island served as a lurking-place to the Buccaneers, Kirke and Bone being said to have especially frequented it ; and the latter has bequeathed his name to a creek on the north side, which appears to have been his favourite resort. Ultimately, as the trade among the West India islands became more frequent, and repeated shipwrecks in this quarter held out hopes of advantage to those who might be in the neighbourhood to profit by them, settlers took up their permanent residence on the island, and were, at one time, more numerous even than they are now. They found that the loose ground which covered it was capable of bearing provision crops, and even cotton ; while the rearing of stock, and sale of the under-wood, which was progressively cleared away, and which, being very full of gum, had a preference in the market of St. Thomas', furnished a further resource. The great object, however, always was, and still is, the wreck of vessels ; and the indolence of the inhabitants is only thoroughly roused by the cry of—' A vessel on the reef.' Then all are roused to activity ; scarcely is the news announced, than boats of every description, shallops and sailing vessels, are pushed off with all haste towards the scene of action ; arms which have been idle for weeks are brought into exercise ; and both skill and intrepidity are tasked to the uttermost to get first on board. The scene, indeed, baffles description ; and it is to be feared that few are attracted by motives of humanity, though

some such do exist ; for the name of Mr. Gildersleve, in particular, must ever be mentioned with respect and gratitude by all who have visited, or been driven on, Anegada.

The surface of the island is the production of the industrious tribe of *lithophytæ*, based (it may be presumed) as usual on a submarine elevation ; and, as it has been supposed that the West Indies have been detached from the Floridas by an irruption of the ocean, the whole may be considered as a chain of mountains projecting from the American continent.

The soundings between Virgin Gorda and Anegada are tolerably regular, being from 8 to 16 fathoms ; and there is, therefore, no doubt that the two communicate, and form parts of one system. But their nature is quite different ; primitive rocks predominating in the former, while, in the latter, we find only layers of limestone and coral. Shall we conclude, therefore, that Virgin Gorda owes its existence to volcanic action, while Anegada has only been raised progressively by the labour of the madrepores ? No fragments of coral rock are found above a certain height in Virgin Gorda ; where, on the contrary, a particular kind of granite rises in huge masses, and is very peculiarly arranged at a place called ' The Bath.'

The direct distance between the two islands is $11\frac{3}{8}$ nautical miles ; and the appearance of Anegada, when approaching it from this side, viz. from the south-west, is remarkable. First, single trees show themselves on the horizon ; then the most elevated part of the island, called Frank's Landing, which may be distinguished, in clear weather, about 8 miles off ; and, last of all, the lower land. The lead usually brings up pieces of coral rock, with coarse sand and broken shells. The greatest depth of water is near Virgin Gorda. At eight miles distance from Anegada there are from 8 to 11 fathoms, decreasing, as the shoals are approached, to 4 fathoms. The outer edge of the reef is marked in some places by the water breaking ; in others, merely the brown heads of the rocks, contrasted with the white colour of the bottom where clear, indicate the danger. Considerable skill is requisite to pass through the openings ; but inside there is good anchorage in $2\frac{1}{2}$ fathoms, about a mile from the beach. Vessels drawing more water anchor outside, in from 4 to 6 fathoms.

On landing, the beach is found everywhere coated with a grey, siliceous, and calcareous substance (the predominant ingredients in which are clay, fragments of limestone, and vegetable fibres), which seems to be deposited by the waters ; and as the tide retires, hardens, and assists slowly in increasing the island. This substance is not, however, to be found on the northern side, where the impetuosity of the surf prevents its being left, and where, accordingly, the land does not gain on the water, as it does along the

whole south shore. But there can be little doubt that, excepting thus on the extreme weather face, it once covered the whole island; the impression of feet and birds' claws being distinctly visible in many places, now overgrown with underwood and grass; the first being believed to have been left by the Indians on their occasional visits already noticed, the other being recognized as those of birds which still frequent the island. And if the question is asked, how is this substance formed? it appears obvious that its matter is the *detritus* of the current which sweeps this sea in a W.N.W. direction, and of which I shall afterwards speak at greater length, while it probably receives its binding nature from the gluten which we find adhering to the mouths of the zoophytes.

The greatest length of Anegada is, from E.S.E. to W.N.W., 10.07 English miles; the greatest breadth 4.25 English miles, which is between Pearl Point and Soldiers' Wash; thence it diminishes towards both extremities, so that the average breadth cannot be stated to be more than 1.33 miles; and the whole circumference, ingresses and egresses included, is 23.09 miles (1846 chains). The surrounding reef approaches nearest on the north side of the island, where, at a particular point, (in Diego Bay,) it joins with the shore. Generally speaking, indeed, the distance of the reef on the northern side is but inconsiderable; and the same may be said of the western, and partly of the southern side. Its greatest extent is to the south-east, and its most southern extremity, from the east end of Anegada, is nearly the same distance as the west end from the same point, namely, 7.68 marine miles;—the distance of the reef on the south side is from 1 to $4\frac{1}{2}$ miles. On sounding close to this natural barrier, on the southern and western side, a depth of from 4 to 6 fathoms is found;—on the northern and eastern side from 6 to 9 fathoms; but at a distance of $1\frac{1}{2}$ miles, in a northerly direction, I found no bottom at 100 fathoms. Inside of the main chain of shoals, the depth of water varies very often, of a sudden, so that it is only with great skill and attention that a small sloop can be navigated from E. to W., and *vice versa*, and this only on the southern side;—on the north side it is quite impossible, as the reef stretches to the shore. There extends from the west end, in a south-westerly direction, almost to the eastern end of Jose van Dykes, a shallow ground, and, as the bottom is mostly whitish sand, it appears of less depth than it is in reality. I found not less than 7 fathoms on it*.

The main reef to the north is occasionally interrupted by

* Among the superstitions of the inhabitants prevails the tradition, that this ground, known by the name of the Middle Ground, rises once a-year from its depth to the surface of the water.

channels, which lead to spacious places for anchorage; but though at the entrance they are 4 to 5 fathoms deep, the basins themselves are often obstructed by shoals, which raise their heads to the very surface of the water. We find these channels,—but of an inferior width,—along the whole surrounding reef; the smallest are on the south-eastern main reef, where there are only two or three which might be passable for vessels of smaller description; they are nevertheless so obstructed that only necessity will induce a vessel to pass through them. I passed, during my survey, through the channel called the Mary Channel, and have still to admire the firm and ready hand of the helmsman, tide and wind being both against us; and we were often so surrounded by shoals, that I thought it impossible to escape without injury.

At a distance of about two nautical miles from Man-of-War Point the southern reef joins the main reef; it has been called 'The Longshoal,' from the density of the beds, which, for a considerable distance, form almost one entire mass. Thence the shoals become, with the exception of the main reef, more detached; the latter stretches to the south-east till it reaches the Elbow, or extreme south-eastern end, when it turns gradually to the south-west, forming almost a half circle, known by the name of 'The Horse Shoe.' The depth of water increases from this towards the east end of Spanish Town; but there are still some dangerous shallows in the way, with only 3 or 4, nay, even 2 fathoms water.

Having given an outline of the environs of the island, I approach now to the terra firma, if the hollow productions of the madreporæ, &c. can be so called. To one who visits this strange spot for the first time, and who, accustomed to see hills and mountains, looks anxiously for such elevations, the effect is disappointing; for the surface is, for the most part, a dead level, with only occasionally a turpentine or loblolly tree overlooking the underwood. However, on the south-eastern side, the ground does rise gradually, from north to south, about 60 feet, which is the highest point of Anegada, and commonly called 'Frank's Landing.' Next to Mr. Gildersleve's habitation is another elevation of the ground, but inferior in height; and there is one more, still smaller, near the settlements. It has been ascertained, indeed, that, as soon as the *lithophytæ* have reached the surface of the water, they stop their work; consequently such formations must be always nearly level.

The southern side of the island is a continued mass of shelves, loosely covered with vegetable earth, more or less mixed with sand. This mould is doubtless the decomposed matter of *algæ*, which, through exposure to the sun, have lost their saline property, and form a most excellent vegetable earth;—it is light

and of a dark-brown colour, and leaves on the tongue a somewhat acid taste. It is so lightly settled on the shelf, that it often covers the ground only for a few inches. The lithophytæ do not build in compact masses, and the shelves are therefore intersected with openings, sometimes narrow, sometimes of considerable width and depth; indeed they stretch now and then for a considerable distance under the shelves, and a deep hollow sound, when going over certain places, proves that they are undermined*. A great quantity of sea-weed having been deposited in these crevices at the time the sea washed over the island, and the decomposed matter being increased by the detritus of the current, and, at a later period perhaps, by deposits from rain torrents, such a shelf-hole possesses a good stock of excellent soil, and produces usually a large growth of plants, which distinguish themselves by their healthy and vigorous appearance. The only trees which the island possesses grow out of these holes, where they find not merely sufficient nourishment, but their roots take so firm a hold, that the north wind, which sweeps with great velocity over the island, does them no injury†. It has been observed, that after having dug about 5 feet in the shelf, layers of sand are occasionally found mixed with minute shells, such as are still to be met with on the bays, another proof that the marine animalcula do not build compactly;—the sea rushing through the openings fills the empty spaces with sand.

The western end of the island has been covered with sand, forced forward by an immense ground sea or surf, to which it is still subjected from time to time, and hence the continual change of the figure of the bays in that part. I observed the same vegetable earth below the sand; and if, therefore, the root can pierce through it, it will find sufficient nourishment to give the plant or shrub a healthy appearance. The whole northern side is exposed to an impetuous sea, but mostly on the north-western part, where the sand has formed little hillocks of 40 feet in height. Behind the first range is a second, and even a third;—all of which are now covered by a species of *Arundo* and the *Suriana maritima*. After these little hillocks have stretched for some miles in an easterly direction, the shore takes a rocky appearance, and, instead of sand, detached pieces of limestone and coral are heaped up, which reach even a height of 30 feet and more. The productive soil lies chiefly behind these rocky hillocks, (perhaps by

* When a flock of sheep pass over such a place, one imagines he hears the roaring of thunder.

† Mr. Gildersleve has planted several cocoa-nut trees in such shelf-holes, of which two have reached a considerable height, and, being the only ones in the island, serve as an excellent land-mark when coming from Virgin Gorda; they are, therefore, noted in my Chart of Anegada.

reason of the protection,) and is cultivated by the inhabitants to raise their crops. On approaching the eastern end, sand-hills begin to rise gradually again, till on the southern side the bays become almost level with high-water mark. The sand is so exceedingly fine, that it can scarcely be used for mortar.

The ponds of Anegada form an important feature in a description of the island;—those towards the west are of the greatest extent. Flamingo Pond has several small isles, which possess a more vigorous vegetation than the surrounding banks, and resemble oases in a desert;—they are chiefly adorned with the *Bignonia leucoxydon*, which, when in flower, heightens their interesting appearance. These ponds form, on the south side, a junction with the sea; and there was likewise one on the northern side, but the hurricane of 1819 stopped its passage. They are consequently subjected to ebb and flood, which would lead to the supposition that the height of the water in the ponds depended on the state of the sea, whether rising or falling; but it is not so,—a rise or sudden decrease often taking place without its being possible to assign any reason for it. The surrounding banks of the ponds are in general 2 feet higher than the surface of the water; but sometimes this accumulates so suddenly, that it overflows and inundates the whole southern side, while at other times, again, it falls; which seems not merely to be caused by evaporation, but by an absorption through the lower strata. The evaporations of the ponds are, during this time, unhealthy, and the effluvia arising from them scarcely to be borne.

A long continuance of dry weather, however, always lessens the quantity of water considerably; and when this takes place during the month of August, a large quantity of salt may be obtained from some of the ponds. I have seen a small pond on the eastern side of the island, the area of which was scarcely more than $1\frac{1}{2}$ acres, which, for a space of time, produced annually 1500 barrels of salt; but for several years it has yielded nothing, probably owing to its neglected and filthy state. Flamingo Pond has also made large quantities of salt, but, of late, for the same reason, has scarcely given any thing. At the period when the salt is forming, white masses, like clouds, are visible below the surface of the water, which in time appear to rise higher, till the water that covered them is entirely evaporated and absorbed, when the salt is carefully taken up and put in barrels and bags. The usual price per barrel is about one dollar; but, in consequence of the present scarcity, this is raised to two and a half and three dollars.

The bottoms of all these ponds are shelfy and uneven, with heads of coral rocks often rising in them above the surface of the water, which is especially the case in a pond to the northward of Mr. Gildersleve's habitation, where not only are larger masses of

coral to be observed than elsewhere, but the banks also rise higher. An example of a different kind is to be found in a small pond west of Salt Pond, the bottom of which sinks, and has, occasionally, caused the loss both of men and cattle. This must be owing to a great quantity of vegetable matter accumulated there, the upper stratum being by no means a quick-sand, and I scarcely could discover even the presence of sand in a large quantity of the matter which forms its unsolid ground. There appeared rather to be the same substance present which I mentioned as having covered formerly the whole island. In the vicinity of White Bay there is also an elasticity of ground, so that it sinks when the foot is placed upon it, and rises immediately on the pressure being removed.

Fresh water is found in great abundance on almost every part of the island, frequently even in the immediate vicinity of the sea, and surrounded by salt-ponds. On the north side, near Lob-lolly Bay, are a range of shelf-holes, called 'the Wells,' which are filled with fresh water. Fabulous accounts were formerly circulated respecting the great depth of these shelf-holes; but I sounded those most famed, and the result was—6 fathoms, $5\frac{1}{2}$ fathoms, $2\frac{1}{2}$ fathoms, and 4 fathoms. The taste of the water of these holes, though they are not far distant from each other, is not alike,—the one which is 6 fathoms deep, possessing much more the taste which is given to water by minerals than those of a lesser depth; and I have therefore no doubt that it has its origin below the layers of limestone,—in which opinion I was confirmed when I procured, by repeated soundings, gravel from the first and second, but coral and broken shells from the two latter, and several others of the like depth. To the northward of Mr. Gildersleve's is a similar shelf-hole, with 2 fathoms water, called 'Lilly Well,' the water of which has by far the most agreeable taste. The formation of these shelf-holes is curious,—the mouth is usually from 10 to 25 feet wide; and they descend in the form of a funnel. Have their sides been formerly perpendicular, and has the action of rain washed the upper layers and given them their present funnel shape? or has it been caused by volcanic eruptions? The water contained in them is said often to rise to an uncommon height, as though forced up by some pressure from beneath; but, in general, they ebb and flow with the sea.

The filtration of water through the surface soil, and its being thereby deprived of its saline particles, takes place in a very short space of time; as, for instance, on the north side of the island, a hole has been dug in the sand, called 'Cow-wreck Well,' which is filled with tolerably good water, though the distance from the sea is only 130 feet, and in the immediate vicinity there are salt-ponds. While encamped one night at the west end of the island, I observed a further proof that almost an instant filtration takes place. After

having finished my day's work, a hole was dug in the sand to procure fresh water, and it gushed out abundantly; but in the morning, to my great regret, a spring tide having inundated our well, the surf had filled it with sand; and this was the more inconvenient as the next spring was rather distant. How agreeably then was I surprised when the people, who assisted me during my survey, told me it was of no consequence, as the sand need only be removed and the water would again flow as fresh as the evening before,—and this proved correct. A little inland, at the west end, fresh water is thus peculiarly abundant; and as there is good anchorage in the vicinity, whole fleets might be provided with any quantity they required. I have been also told that the water does not spoil by keeping.

Near one of these shelf-holes the marks of feet were pointed out to me, which, from their form and the outward turn of the toes, are considered to be those of Indians. Mr. John Vanterpool, who has passed the great climacteric, recollects having seen them on his first visit to the island, when the oldest inhabitants also remembered them from their infancy; and there is therefore little doubt that they have been left by the aborigines, who must have visited the spot when still covered with the soft glutinous matter already alluded to. The thermometer, when put in the water of these shelf-holes, indicates usually a temperature from 5° to 8° below that of the atmosphere, and 3° to 4° below that of the sea.

One would suppose that the climate, considering the low situation of the island, and the effluvia which escape from the ponds, would be unhealthy; but the examples of longevity prove almost the contrary. It is observed that, within the last ten years, the island has not been so healthy as it was formerly; and perhaps the present advanced age of the inhabitants has made them more sensitive under changes of weather*. As soon as the rainy season sets in, and the lowest parts of the island are inundated, fevers and influenza prevail. It is remarkable, that not a single case of elephantiasis is at present on the island; nor is this complaint known (as I was told) to have ever attacked an individual born there, notwithstanding their occupation, which compels them to be much in the water.

Fogs, equal to those which we have on the continent, rise here very suddenly; and I was myself witness of one which caused a considerable consternation among the inhabitants, the cry having

* There is a notion prevalent among some of the inhabitants, that the island had been less healthy since the mosquitoes had ceased to visit it in such large clouds as before 1819; but as it appears that they returned, in 1831, in as great numbers as ever, those who entertain this opinion may hope that this effect, or concomitant, of their departure, may also cease.

been raised that the sea had come over the land from the north side. And, certainly, the appearance was appalling enough, large masses of white fog rolling heavily over the land, and approaching from the north; nor was I surprized that it had been at first taken for the sea.

In calm and clear weather, and chiefly at high water, objects at Virgin Gorda, which, at other periods, are entirely invisible, seem to rise above the surface of the water, leaving apparently a vacancy between; and trees, rocks, &c. appear, accordingly, to hover in the air. In cloudy weather, or when the sea was agitated, I never observed this curious refraction.

It is well known that the West India islands are subject to severe earthquakes; but Mr. Gildersleve, who has lived for the last twenty years in Anegada, and who is a man of great respectability and veracity, assures me that he recollected but very few there, and those slight. A heavy shock was felt in October, 1830, in Tortola, Virgin Gorda, St. Thomas, &c., of which nothing was known in Anegada; and, on another occasion, a shock, which we experienced on the 23d of April, 1831, in Anegada, was not felt in Tortola. Shall we conclude that this occurrence was only accidental? or if the contrary, and that these shocks, felt in common at the Virgin Islands, do not extend to Anegada, shall we not be obliged to doubt that submarine communication between them, of which we have otherwise proofs? The true solution must be, that the subterranean fire, or rather the elastic vapours, find no additional assistance in Anegada. The thermometer stood on that day at 12 o'clock, $84^{\circ} 05''$, and fell, during the shock, at 2 o'clock, to 78° .

I subjoin the result of thermometrical observations, kept during the months of April, August, September and October, 1831; and add, for comparison, some others made during the same time in the town of Tortola*. The mean temperature being greater in Anegada than in Tortola, may be attributed to the calcareous soil and the low sandy bays of the former island.

The vegetable productions of Anegada are, in some respects, singular. I have found several species of *Malpighia*, *Mimosa*, *Eugenia*, *Croton*, *Agave*, *Epidendrum*, &c., which I did not observe in any of the other Virgin Islands. These plants appear to be distributed in regular tribes; we observe, therefore, some on certain places, which appear to have chosen these spots exclusively, and are not to be met with elsewhere. This is the case with *Malpighia angustifolia*, which is in great abundance about the set-

| | | | | Anegada. | Tortola. |
|--|-----|-----------|--|-----------------|--------------|
| * Mean temperature of the month of April 1831, | | | | $76^{\circ} 8'$ | 77° |
| Do. | do. | August | | $83^{\circ} 1'$ | 82° |
| Do. | do. | September | | $83^{\circ} 6'$ | 82° |
| Do. | do. | October | | $81^{\circ} 9'$ | 80° |

tlement, but neither farther east nor west. *Malpighia urens* occurs farther to the west, where there is likewise another species (perhaps *coccifera*), the berries of which are eaten by the children; these two are chiefly near and about Mr. Gildersleve's habitation. A small spot, almost surrounded by the ponds, and cultivated by Mr. Gildersleve, produces the *Laurus culilaban*, the bark of which is much sought after as a simple. The west end is remarkable for the great quantity of sea-side grape (*Coccoloba uvifera*). The sand-hills on the north side are overgrown with the *Suriana maritima*; other places are possessed by the *Rhizophora mangle*, *Scaevola lobelia*; and a species of *Croton*, which, amongst the Virgin Islands, is peculiar to Anegada, seems to extend almost over the whole island. The juice that flows from its branches and leaves, when pressed, stains so badly that nothing can remove it; the smell is stronger than that of *Croton balsamiferum*.

The beautiful *Robinia squamata* is frequently met with, and its yellow clusters of flowers add not a little to the embellishment of the Anegada Flora. I have observed that the yellow colour prevails in a striking manner amongst the flowers of the island, the red and blue occurring only in a few instances.

There are likewise four or five plants of the *Agave vivipara*, two near the settlements, and three to the northward of Mr. Gildersleve's. In a short space of time a large quantity will be found on these spots, for even now colonies have formed themselves round the mother plants. The other Virgin Islands do not possess this plant, neither do I recollect of having seen it in Porto Rico.

The dispersion in tribes of these plants, which in a great measure are strangers to the other Virgin Islands, leaves no doubt that the seeds have been carried there by the currents, and, perhaps, also by birds, which arrive regularly from the Spanish main at two periods of the year.

The edges of the ponds are usually covered with red *Ulvæ*, which leave a like colour when pressed between the fingers, and when taken out of the water and exposed to the sun become decomposed and smell most offensively. I discovered a similar *Ulvæ* on the coral rocks when the tide had retired.

Though the class *Lithophytæ* predominates, still Anegada is indebted for its origin to the united and indefatigable labour of the following tribes: the *Madrepora muricata*, *galaxea*, *astroites*, and *porites*, *Millepora*, *alicornis*, *compressa*, *Nullipora*, &c. Captains Flinders and B. Hall, as well as M. Quoy, have so fully described the economy of these animals, that I consider it entirely superfluous to say more respecting them*. *Ceratophytæ* are more

* I saw, on the south-eastern reef, a strange formation of their work;—it was somewhat in the shape of a kettle, regularly excavated, and at a foot distance,

on the southern side than the northern and eastern. Generally speaking, the different tribes of Polypi, Acalephæ, and Echinodermatæ, are numerous round Anegada.

Of all the insects the mosquito (a species of *simulia* or *atractocera*) are the most troublesome in the island; indeed the torments which they cause the inhabitants and the casual visitor are unceasing. They swarm not only during the day, but they are increased at night by the 'gallon nipper,' a species of a larger description than the common mosquito, and also more venomous. During the last twelve years Anegada had not been visited by so large a swarm of these insects as during the late summer of 1831; indeed, I was several times obliged to return from my surveying to the settlements, not being able to proceed in consequence of their painful stings. It is only possible by making continually smoke around the habitations to get rid of them in some measure*.

Of other venomous insects there are the *Scolopendra morsitans*, *Scorpio americana*, black and blue spiders, the bite of the latter of which is dangerous, causing sudden inflammation. It is curious that there are no black worms or gongolos (*Julus fuscus*) to be met with, though there are great numbers in the other Virgin Islands. Persons who brought some over from Spanish Town, out of curiosity, told me they died in a short time without propagating. It is certainly a remarkable fact, that as the distance between Virgin Gorda and Anegada is so trifling, and the *Julus fuscus* in such large quantities on the first island, that there should be none in the latter. Can the air be the reason of it, or the exhalation of the ground peculiar to Anegada? If the latter be the reason, it must be attributed to the calcareous nature of the soil.

The species of Crustacea are numerous, and afford a considerable addition to the sustenance of the inhabitants. The number of *Astais*, *Scyllarius*, and *Cancer*, which may be caught in the reefs, and, during night, on the rocky shores on the north side, is considerable. One would suppose that the Mollusca were likewise numerous, and that a conchologist would be amply rewarded by an excursion thither; but he would find himself deceived, the species are but few. The *Tellina radiata* is found in the greatest perfection; likewise *Pholas* and *Mya*, some *Cypreæ*, and sometimes

surrounded by a wall of like height. The diameter of the whole work I estimated to be about 11 or 12 feet. Though I sent a diver below to break off a piece, he could not succeed.

* They had mostly disappeared since 1819, without any reason being alleged for it; but returned in 1831, in larger swarms than ever. These insects are not only a scourge to man, but the poor beasts suffer likewise; and I have been told, by different persons, that they have known the wild goats return to the settlements in order to seek protection. The sheep suffer the most from their bites, which cause inflammation, cramps, and even death amongst them.

a pretty specimen of the queen conch (*Buccinum flammeum*). During the month of May, when the tide is the lowest, and the water retires from the reefs, the olive (*volutæ* spec.) is forced, by the heat of the sun, to leave its place and crawl towards the water; a considerable quantity are taken during that time, but common and of no value.

The surrounding sea abounds in good fish, to which the ponds add likewise their number; without entering into details, I mention only one fact which deserves a strict investigation. It is well known that the yellow-billed sprat (*Clupea*, or *Thrissa*), baraicua (*Perca*, Browne), the bottle-nosed Cavalla (*Scomber*, Browne), rock-fish (*Perca marina*, Catesby), and sometimes the king fish (*Xiphias*), are occasionally poisonous, and are known to have caused immediate death. To what the poisonous quality of these fishes is to be attributed is very uncertain; it has been supposed that their feeding on copper-banks, of which there are some at St. Eustatia, renders them poisonous; others deny this, and attribute it to their feeding on narcotic submarine plants. However, though frequently accidents happen in the neighbouring islands, not one instance of fish poison has been known in Anegada; and the yellow-billed sprat, the largest baracuta, and even the amber fish, are eaten with impunity. Who can solve this enigma? If we suppose that the feeding on copper-banks renders certain fishes poisonous, then the waters round Anegada must possess a powerful antidote, of which the neighbouring islands are deprived; or if the poisonous quality arise from the feeding on a narcotic submarine plant, then Anegada must not only be without it, but the dangerous quality of that plant must be instantaneous, and the fish must have been caught immediately after having fed upon it, because the distance between Anegada and Virgin Gorda being so trifling, one would suppose (even admitting that the seas near the first island are divested of it) that there would be, at least, one instance where the poisonous fish directed its course towards Anegada, and being caught there, proved injurious to those who ate of it. Mussels and crabs are likewise innocent. As there is almost no doubt left that these animals are rendered poisonous by living near manchineel trees (*hippomane mancinella*), and feeding upon their roots,—and as Anegada possesses not a single tree of that kind,—shall we therefore conclude, that not only mussels and crabs, but also the fishes mentioned before, are rendered poisonous by the roots of manchineel, which are known to grow on the waters' edge, and to send their roots to the same? I acknowledge myself negligent in not having investigated this point before, but I hope yet to add some further observations to the little knowledge we have of it. It is a blessing conferred alone on the inhabitants of Anegada, that they can enjoy any fish without being afraid.

Of reptiles we find the snakes common to the Virgin Islands. I have met with a small red snake, very similar in appearance to the dangerous coral snake; but I was assured that this species was entirely inoffensive. I saw likewise the *Amphisbæna fuliginosa*, which was a stranger to the inhabitants, and must have emigrated from the Spanish main. The leguan, or guana, (*Iguana sapidissima*) is frequently met with at the west end, and attains a considerable size: it is hunted with dogs. The gally wasp, or woodslave (a species of *lacerta*), is seldom met with. The green turtle (*Chelonia mydas*) deposits frequently its eggs in the sandy bays. Previous to 1819, quantities of the *Chelonia imbricata* were caught on the shallow ground round Anegada; but it appears that the dreadful hurricane which took place that year must have driven them away and destroyed their progeny; it is now very rarely that one of them is met with.

The feathered tribe is very numerous, as may be supposed, the island possessing so many and so extensive ponds. Amongst all the strangers which pay occasional visits to Anegada, the flamingo (*Phœnicopterus ruber*) distinguishes itself. They arrive usually during the rainy season, when the Oronoco inundates its shores, and deprives them of the means of procuring themselves food. With the first southerly wind, at that period, they approach in flocks of hundreds, and choose Flamingo Pond for their favourite abode; whence they proceed every morning at sunrise to the reefs, where they feed till the sun draws near the horizon, when they return. It is a splendid sight to see several hundred drawn up in a regular form, resembling the figure of a cross, approaching from the west, flapping their mighty wings, and the sun reflecting his rays upon their rose-coloured breasts, the air resounding with their cry, which, consisting of several cadences, has been compared by the inhabitants to singing. It appears they decrease annually; they even do not breed in Anegada, as they did formerly. On the Spanish main these birds are held sacred, and are in no way molested by the superstitious inhabitants. Unfortunately their flesh is palatable, and the Anegadians, not influenced by religious awe, commit annually great destruction amongst them.

The ponds are further frequented by large flocks of ducks, *Hæmatopus*, *Ardea*, (*virescens* and *cœrulea*,) *Charadrius*, *Calidris*, *Dicholophus*, *Psophia*, *Parra*, *Fulica*, and others of the *Grallatores*, which, on the approach of man, rise over the surface of the ponds and fill the air with their deafening cry.

With the exception of domestic animals, Anegada has but one species of mammalia in abundance, and that is the rat. They are really a scourge, and march during night in great numbers over beds, chairs, and tables. They intrude even during day, the shelf-holes affording them a certain retreat in case of emergency.

The population of Anegada consists, at present, of eleven white, and twenty-one coloured and black families.

Current.—It is well known that the tropical current caused by the earth's rotation sets to the westward, and its grand movement in these latitudes is directed through the Caribbean Sea ; but it is probable that a branch of it, turned aside by the north-eastern coast of South America, sweeps along the Caribbean Islands to the north-west, till it reaches the Bahamas, where it is diverted by the Gulf-stream through the channel of Bahama ; and it is this branch which at present attracts my particular attention, and in proof of the existence of which I adduce the following remarks :—

Vessels bound from America to the West Indies, and chiefly to St. Thomas's, find themselves frequently to the north of the Virgin Islands ; and this deviation from their intended course has proved but too often fatal, having brought them on the reefs of Anegada when they thought themselves far to the southward of that dangerous island. Nor can repeated occurrences like these be attributed exclusively to errors in the observations for determining the latitude, or to false reckoning.

I left New York the 28th of October, 1829, in the American brig, William and Thomas, bound for St. Thomas's. We made Bermuda the 7th day after our departure, when contrary winds retarding our course, we discovered land in the morning of the 15th November. The captain, according to his reckoning, pronounced it to be St. Martin's, but fortunately observed, on approaching, that it was Virgin Gorda, or very probably the same night would have seen us on the reefs of Anegada.

I conversed with Captain Brown of the English brig Francis, bound from Nassau (New Providence) to Trinidad, who having been prevented by cloudy weather from taking an observation for several days, according to his reckoning was far distant from Anegada, and, making land in the evening, considered it to be St. Martin's, but was wrecked on the reefs of Anegada at eleven o'clock the same evening.

The American brig Lewis, Captain Turly, bound from Philadelphia to St. Thomas's and Maraiibo, was wrecked on the south-eastern reef of Anegada, 9th April, 1831. According to his reckoning he was the day previous on a parallel with St. Thomas's ; and I have been told that a second time he narrowly escaped being wrecked on nearly the same spot where he had thus lost the Lewis, having discovered the foam of the breakers just in time to bear away.

During my survey of the island and reefs of Anegada, I had additional proofs of the existence of this north-westerly current. I found on the south-eastern reef several buoys with Tyer ropes attached to them, which, as Anegada does not possess the Tyer*,

* Corypha.

and they could not have drifted hither from the islands to the westward, I believe came from St. Martin's. I found also, some days after a severe gale (the 24th September, 1831), two buoys on the same reef, which appeared to have been attached to anchors. When sounding between Virgin Gorda and Anegada, I threw the log every thirty minutes, and kept a regular account of what ought to have been our position between sounding and sounding; but I did not neglect to take likewise the bearings of some remarkable objects determined before, and it was very seldom that both methods agreed, our drift being always westerly; nor could I attribute this to the influence of the tides, the result being the same whether these set north or south. To obtain further proof, I also left my anchorage one day, and sailed ten miles to the northward of Anegada, where the boat was lowered, and rendered stationary, by means of a kettle filled with stones, it being then southern tide; in spite of which, the log was carried north-west by west. I repeated the same experiment in the waters between Virgin Gorda and Anegada, where I had the advantage of anchoring; and the set was always the same, the drift being nearly one knot.

I have already noticed the calcareous and siliceous deposit on the southern side of Anegada, which I consider to be the drift-matter of this current, and very likely a part of the sediment brought down by the Oronoco. This explains the reason why there are many plants to be met with on the island, which do not exist in any of the other Virgin islands, but are peculiar to South America; and as they are preserved on the southern shore of Anegada, where the surf is not so impetuous, the flora of this side is materially different from that on the other.

I saw, on the north side of Anegada, a great quantity of cork shavings; and, on inquiry, was told by the inhabitants that such had been drifted ashore annually for many years, in sufficient quantity to supply them abundantly with cork to attach to their fishing-nets. Now, the cork tree* being indigenous in the south of Europe and in Africa, I conjecture that this drift is first brought from the coast of Spain and Portugal, and swept along with the south-east current which prevails there, till it meets the grand westerly current, through which it is carried by the branch which takes this north-western direction, to the low shores of Anegada; and it would be desirable to ascertain whether like pieces of cork are drifted on other shores of the Caribbean Islands.

There is also a remarkable current inside the reefs of Anegada, which sets along the shore from west to east, on the north side, and from east to west on the south side of the island, till it completes the round, when it is discharged through a channel near the west end.

* *Quercus suber*.

On examining the list of vessels wrecked on Anegada, it will be observed that the Americans are the greatest sufferers; the next in number are those from Spain; with few English, and still fewer of other nations. And it is certainly true, that the Americans trade the most with St. Thomas's. But besides this, their vessels, after having crossed the Gulf-stream, are likewise most exposed to the influence of the north-west current; and next to them are vessels from Spain, bound for Cuba, which may have taken advantage of the western tropical current. I can only conjecture the extent of the current outside of Anegada, but it seems probable that it does not reach farther than 24° north latitude, where I conceive it may be diverted by the branch of the Gulf-stream, which escapes laterally through the Bahama channel, or by others of the many local currents existing near those islands, though this can only be determined by a strict examination. Being a branch of the grand current into the Gulf of Mexico, it is very likely that its temperature will be found to differ from that of the rest of the ocean, and essential advantage might be thus derived, in approaching these latitudes, from the use of the thermometer.

The north-western tide between these islands is much stronger than the flood-tide of the south-east; undoubtedly from the circumstance that tide and current work the same way. And there are two other facts worthy of note. 1. The greatest number of wrecks on Anegada occur in the months from March to June. 2. Vessels of large burden strike usually on the reefs to the south-east, while smaller ones generally go on shore farther west. I have formed the following opinion regarding both points. The wind blows frequently, from March to June, from the S. and S.E., and the velocity of the north-west current will be thus increased; in consequence of which vessels bound, during that time, for these islands are more subject to error in their course than at any other period. And lighter bodies being more influenced by currents than heavier ones, I conclude this to be the specific cause of the second remark.

A further investigation of the facts stated above appears to me, however, to be of the greatest importance; and it would be very desirable that the attention of commanders of vessels bound for these islands should be called to the subject. The publication of their remarks might, in some measure, prevent the distressing scenes of which, unfortunately, Anegada is but too often the theatre.

The following list of vessels, lost on Anegada within the memory of man, is incomplete and deficient in details, being drawn up merely from oral testimony; but its extent sufficiently

proves the dangerous position of these reefs. References are made in it to the points near which each vessel was lost, as shown on the accompanying map.

- A . 1 Rufus, American schooner.
- B . { 2 Collector, ditto, 1831.
- { 3 James Edwards, ditto.
- { 4 Maxwell, ditto.
- C . { 5 Arcadia, American brig, 1823.
- { 6 Volvent, Danish ditto, 1819.
- { 7 Tartar, American schooner.
- D . { 8 Francis, English brig, 1831.
- { 9 Task, American brig.
- E . . 10 Ajax, English ship, Sept. 1819, captain and thee men drowned.
- F . . 11 Renominée, American brig.
- G . . 12 Mason's Daughter, American schooner.
- H . { 13 Nelie, American ship.
- { 14 Surinam, American schooner.
- { 15 Paterson, June 1818.
- { 16 Calabash.
- { 17 Rosenleau, French privateer.
- { 18 Astrea, British frigate, May 1808. Four men lost.
- I . . { 19 Union, American Schooner.
- { 20 Donna della Gracia, Spanish brig, 1831.
- { 21 Esperanza, ditto.
- { 22 Ocean, English ship.
- { 23 Charles, English brig.
- { 24 Chillingham Castle.
- K . { 25 Restauradora, Spanish schooner, with slaves, many perished,
 1831.
- { 26 Lewis, American brig, 1831.
- { 27 Donna Paula, with slaves, 1819.
- { 28 Corsica, American brig, 1831.
- { 29 London, English ship.
- { 30 L'Aimable Lalalou, French ship.
- { 31 Columbus, American schooner.
- L . { 32 Mary, American brig.
- { 33 Spanish felucca, 1808. Three men lost.
- { 34 Bulwark, American brig.
- { 35 Sarah.
- { 36 Halifax Lady.
- { 37 Otto, Danish ship.
- M . { 38 Argus, English brig, 1819.
- { 39 Spanish ship, 1810.
- N . . 40 Byron, English schooner.
- O . { 41 Spanish felucca.
- { 42 Caroline, American brig, 1822.

- P . { 43 Marquise de Vienne.
44 Schooner, supposed from Trinidad, all hands perished.
45 Il Candeliero.
46 Sophia, schooner.
- Q .. 47 French brig.
- R .. 48 Good Hope.
- S .. 49 Martha, schooner.
- T . { 50 Sexta, schooner.
51 Fleur de la Mer, under Portuguese colours.
- U .. 52 Spanish felucca, 1822.
- V .. 53 Lioness, American brig, 1811.
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